

- 18 -

CLAIMS

1. The peptides, being either epitopes or potential epitopes for the stated HLA (human leucocyte antigen) class I molecules, conservative variants thereof, and longer peptides containing these sequences which are sub-units of the indicated antigens:

label	Sequence										Position
<u>HLA-A2</u>	1	2	3	4	5	6	7	8	9	10	
tr26	H	L	G	N	V	K	Y	L	V		3
tr29	L	L	M	D	C	S	G	S	I		51
tr39	G	I	A	G	G	L	A	L	L		500
ls10	I	L	Y	I	S	F	Y	F	I		4
ls11	Y	I	S	F	Y	F	I	L	V		6
ls19	G	I	Y	K	E	L	E	D	L		1801
ls23	H	I	F	D	G	D	N	E	I		1883
cp36	Y	L	K	T	I	Q	N	S	L		334
cp37	Y	L	Q	K	I	Q	N	S	L		334
cp38	Y	L	Q	K	I	K	N	S	L		334
cp39	Y	L	N	K	I	Q	N	S	L		334
<u>HLA-B8</u>											
cp43	L	R	K	P	K	H	K	K	L		134
cp44	L	K	K	I	K	N	S	I	S		335
cp45	Q	V	R	I	K	P	G	S	A		358
cp46	A	N	K	P	K	D	G	L	D		366
tr42	A	S	K	N	K	E	K	A	L		107
tr43	K	N	K	E	K	A	L	I	I		109

- 19 -

label	Sequence										Position
	1	2	3	4	5	6	7	8	9	10	
<u>HLA-B17</u>											
cp48	L	S	V	S	S	F	L	F	V		8
cp55	G	S	A	N	K	P	K	D	E	L	364
cp56	C	S	S	V	F	N	V	V			388
ls36	N	S	E	K	D	E	I	I			28
ls37	G	S	S	N	S	R	N	R	I		42
ls39	V	S	Q	T	N	F	K	S	L		92
ls40	K	S	L	L	R	N	L	G	V		98
ls42	Q	S	D	S	E	Q	E	R	L		179
ls45	R	T	K	A	S	K	E	T	L		1187
ls48	H	T	L	E	T	V	N	I			1742
ls49	I	S	D	V	N	D	F	Q	I		1749
ls50	I	S	K	Y	E	D	E	I			1757
ls51	I	S	A	E	Y	D	D	S	L		1764
ls53	K	S	L	Y	D	E	H	I			1854
ls54	L	S	E	D	I	T	K	Y	F		1898
ls55	T	K	Y	F	M	K	L				1902
tr57	K	T	A	S	C	G	V	W	D	EW	240
tr58	G	T	R	S	R	K	R	E	I	L	260
tr59	S	S	V	Q	K	P	E	E	N	I	311
tr60	D	S	E	K	E	V	P	S	D	V	367
tr61	Y	S	P	L	P	P	K	V	L		415
tr62	E	S	D	N	K	Y	K	I	A		490
tr63	A	T	P	Y	A	G	E	P	A		523
tr64	E	T	L	G	E	E	D	K	D	L	535

these peptides being selected from three *Plasmodium falciparum* antigens, circumsporozoite protein (cp), thrombospondin-related anonymous protein (tr) and liver-stage antigen-1 (ls),

2. A peptide comprising at least two of the sequences listed in claim 1.
3. A peptide as claimed in claim 1 or claim 2 having an N-terminus or C-terminus carrying a lipid tail.
4. A peptide as claimed in any one of claims 1 to 3, comprising 8-100 amino acid residues.
5. A vaccine comprising at least one peptide according to any one of claims 1 to 4, for immunisation against malaria.
6. Use of *Plasmodium falciparum* gene or protein TRAP (thrombospondin-related anonymous protein) as a cytotoxic T lymphocyte-inducing gene or protein for immunization against malaria.
7. Oligonucleotides which code for the peptides claimed in any one of claims 1 to 4.
8. A vaccine comprising at least one oligonucleotide according to claim 7 for expression in vivo for immunization against malaria.
9. A method of inducing primary cytotoxic T lymphocyte responses to a chosen antigen or microorganism, which method comprises incubating lymphocytes ex vivo with the chosen antigen or microorganism in the presence of KLH (keyhole limpet haemocyanin) or any other substance which preferentially stimulates a CD45RA<sup>+</sup> subset of T lymphocyte.
10. A method as claimed in claim 9, wherein IL-7 (interleukin-7) and/or IL-2 (interleukin-2) is also present during incubation.

- 21 -

## 11. Use of any one of the peptides:

label	Sequence										Position
HLA-B7	1	2	3	4	5	6	7	8	9	10	
cp6	M	P	N	D	P	N	R	N	V		300
cp6.1	M	P	N	Y	P	N	R	N	V		300
cp6.2	M	P	N	N	P	N	R	N	V		300
ls6	K	P	I	V	Q	Y	D	N	F		1786
sh1	I	P	S	L	A	L	M	L	I		7
sh6	M	P	L	E	T	Q	L	A	I		77
cp21	N	P	D	P	N	A	N	P	N	V	120
tr6	N	P	E	N	P	P	N	P	D	I	348
tr13	I	P	D	S	I	Q	D	S	L		164
tr15	E	P	A	P	F	D	E	T	L		529
tr21	G	P	F	M	K	A	V	C	V		228

and conservative variants thereof and longer peptides containing the sequences which are sub-units of the stated antigen, and of oligonucleotides which code for the said peptides, as a cytotoxic T lymphocyte-inducer for immunization against malaria of individuals possessing a HLA-B7 allele.

10042302-01102